

Enhanced Type G™ High Efficiency Tower Packing (ETG)

Features

- Highest efficiency tower packing on the market – 3" to 6" HETP's in commercial columns
- Low pressure drop per theoretical stage, protects thermally sensitive products and intermediates
- Most compact designs for simultaneous reactions, distillations and absorptions and for direct contact heat transfer
- Widest turndown range, ease of installation, and proven scale-up factors make it ideal for lab and pilot columns.
- Linear scale-up factors make it ideal for lab and pilot columns
- Snug fit against column eliminates wall flow, avoiding the need for wall wipers and reducing the need for re-distribution

What are Enhanced Type G High Efficiency Tower Packings?

Manufactured from multi-strand knitted mesh, the wicking action of the capillary passages formed between the wires gives the packings their high efficiency, while high free volume maximizes capacity. Typically 5 to 12 wires or filaments are cabled together, knit into ribbons 4" to 6" wide, and then given a crimp (see Figure 1). These corrugations are then crossed to prevent nesting and either spirally wound or vertically laminated until one unit or layer is made that covers the column's entire cross section. Spirally wound method is only used in small columns when there is a full body flange available for installation, while vertically laminated method can also be used when the packing must go through a manway. In either construction the packing is oversized to assure a snug fit, even if the column

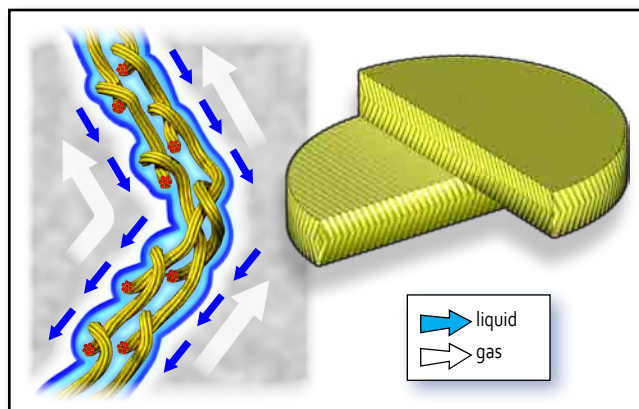


Figure 1
Constructed by knitting multi-strand "cables," of a capillary nature, that are then crimped to change direction that create tortuous passage ways for the rising vapor which promotes unsurpassed mixing.

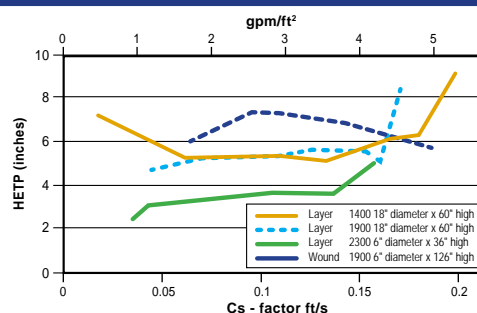


is slightly out of round. All the wires in contact with the wall mean that the liquid running down is immediately sponged off and directed back into the packing.

How do Enhanced Type G High Efficiency Tower Packings work?

Capillary flow is quickly formed in the packing's numerous high specific surface area channels which, depending on the style selected, range from 1200m²/m³ to 16000m²/m³ (see Tables 1 and 2). This yields amongst the highest effective surface areas of any packing on the market today. Thus Enhanced Type G™ High Efficiency Tower Packings have the high hold-up of liquid necessary for heat and mass transfer, which also allow chemical reactions to take place simultaneously with the physical processes of distillation or absorption. This contrasts with gauze packing where a liquid film spreads over tightly woven wires, but only has gas-to-liquid mixing on two sides of this film.

Efficiency of Enhanced Type G Tower Packings



Layer data is based on total reflux, atmospheric distillation of methyl-cyclohexane/toluene.
Wound data is based on total reflux, atmospheric distillation of benzene/ethylene dichloride.

Specifications

EIT has the largest family of knitted wire mesh packings on the market today. Made from any metal or plastic that can be drawn into a fine wire, a product is available with the right combination of capacity, pressure drop, corrosion resistance, or cost to meet your needs. By carefully selecting the right knit, crimp, layering, and the material that is wet the best by your process fluids; EIT engineers can guide

you to a selection that will give you the most cost effective and best performing tower in your entire plant.

All data is relative to Style 1900. Available in all 300 and 400 series SS, Alloys 200, 400, 600, 800, Alloy 20, Alloy C276.

Figure 2

EIT provides complete design and supply of column internals to complement Enhanced Type G packing.

Style	2300	1900	1400	1200
Material	Metallic	Metallic	Metallic	Metallic
Surface Area, m ² /m ³	2300	1900	1400	1200
Percent Voids	93.6	94.8	96.0	94.2
HETP, Inches	3" – 5"	5" – 6"	6" – 8"	8" – 12" in Aqueous
Max. F-Factor (US Units), $\sqrt{V\rho g}$	2.2	2.2	2.6	2.0
Liquid Capacity, GPM/Ft ²	0.05 to 5 in Organic, to 3 in Aqueous	0.05 to 5 in Organic, to 3 in Aqueous	0.05 to 5 in Organic, to 3 in Aqueous	To 10 in Aqueous
Relative $\Delta P/TS$	0.65	1.0	0.45	1.60
Relative Cost	1.30	1.0	0.85	0.80

Note: Layer construction is recommended for installation in columns with inside diameter larger than 305mm (12 in.).

Style	DC1800	DC1200	DC16000	DC16000
Material	SS/PP Mono	SS/ETFE Mono	SS/PTFE Multi	C276/PTFE Multi
Surface Area, m ² /m ³	1800	1200	16000	16000
Percent Voids	89.9	90.7	94.1	94.1
Temperature Rating, °C	150	190	200	200
HETP, Inches	8" – 10"	8" – 10"	4" – 6"	4" – 6"
Max. F-Factor (US Units), $\sqrt{V\rho g}$	2.6	2.6	1.6	1.6
Liquid Capacity, GPM/Ft ²	To 10 in Aqueous and Organic	To 10 in Aqueous and Organic	0.05 to 2 in Organic and Aqueous	0.05 to 2 in Organic and Aqueous
Relative $\Delta P/TS$	0.7	0.7	3.0	3.0
Relative Cost	0.3	0.8	0.9	1.8

Packing Style	Column Diameter	Hydrocarbon Service	Aqueous Service
Layered 2300	≥ 6"	120	70
Layered 1900	≥ 6"	95	55
Layered 1400	≥ 6"	55	40
Wound 1900	1"	240	n/a
Wound 1900	2" – 4"	115	115*
Wound 1900	≥ 6"	75	75

* 2" Wound activated phosphor bronze

